SEQUENCE LISTING

SEQ ID NO: 1

Amino acid sequence of the Signal Peptide ER:

MKTNLFLFLIFSLLLSLSSAEF

SEQ ID NO: 2

Amino acid sequence of the Vacuolar targeting signal from Tobacco chitinase A:

DLLVDTM

SEQ ID NO: 3

Nucleic acid sequence of the Forward primer:

cagaattcgcccgcccctgca

SEQ ID NO: 4

Nucleic acid sequence of the Reverse primer:

ctcagatcttggcgatgccaca

SEQ ID NO: 5

Nucleic acid sequence of the forward primer from the 35S promoter:

ctcagaagaccagagggct

SEQ ID NO: 6

Nucleic acid sequence of the backward primer from the terminator:

caaagcggccatcgtgc

SEQ ID NO: 7

Nucleic acid sequence of the human GCD cDNA used for the constructs of the invention

gcccgccc ctgcatccct aaaagcttcg gctacagctc ggtggtgtgt gtctgcaatg ccacatactg tgactccttt gacccccga cctttcctgc ccttggtacc ttcagccgct atgagagtac acgcagtggg cgacggatgg agctgagtat ggggcccatc caggctaatc acacgggcac aggcctgcta ctgaccctgc agccagaaca gaagttccag aaagtgaagg gatttggagg ggccatgaca gatgctgctg ctctcaacat ccttgccctg tcacccccctg cccaaaattt gctacttaaa tcgtacttct ctgaagaagg aatcggatat aacatcatcc gggtacccat ggccagctgt gacttctcca tccgcaccta cacctatgca gacacccctg atgatttcca gttgcacaac ttcagcctcc cagaggaaga taccaagctc aagatacccc tgattcaccg agccctgcag ttggcccagc gtcccgtttc actccttgcc agcccctgga catcacccac ttggctcaag accaatggag cggtgaatgg gaaggggtca ctcaagggac agcccggaga catctaccac cagacctggg ccagatactt tgtgaagttc ctggatgcct atgctgagca caagttacag ttctgggcag tgacagctga aaatgagcct tctgctgggc tgttgagtgg atacccccttc cagtgcctgg gcttcacccc tgaacatcag cgagacttca ttgcccgtga cctaggtcct accctcgcca acagtactca ccacaatgtc cgcctactca tgctggatga ccaacgcttg ctgctgcccc actgggcaaa ggtggtactg acagacccag aagcagctaa atatgttcat ggcattgctg tacattggta cctggacttt ctggctccag ccaaagccac cctaggggag acacaccgcc tgttccccaa caccatgctc tttgcctcag aggcctgtgt gggctccaag ttctgggagc agagtgtgcg gctaggctcc tgggatcgag ggatgcagta cagccacagc atcatcacga acctcctgta ccatgtggtc ggctggaccg actggaacct tgccctgaac cccgaaggag gacccaattg ggtgcgtaac tttgtcgaca gtcccatcat tgtagacatc accaaggaca cgttttacaa acagcccatg ttctaccacc ttggccactt cagcaagttc attcctgagg gctcccagag agtggggctg gttgccagtc agaagaacga cctggacgca gtggcactga tgcatcccga tggctctgct gttgtggtcg

tgctaaaccg ctcctctaag gatgtgcctc ttaccatcaa ggatcctgct gtgggcttcc tggagacaat ctcacctggc tactccattc acacctacct gtggcatcgc cag

SEQ ID NO: 8

Glucocerebrosidase amino acid sequence

A R P C I P K S F G Y S S V V
C V C N A T Y C D S F D P P T F P A L G T F S
R Y E S T R S G R R M E L S M G P I Q A N H T
G T G L L L T L Q P E Q K F Q K V K G F G G A
M T D A A A L N I L A L S P P A Q N L L L K S
Y F S E E G V R L L M L N D Q R L L L P H W A K V
V L T D P E A A K Y V H G I A V H W Y L D F L A P A K A
T L G E T H R L F P N T M L F A S E A C V G S K F W E
Q S V R L G S W D R G M Q Y S H S I I T N L L Y H V V
G W T D W N L A L N P E G G P N W V R N F V D S P I I
V D I T K D T F Y K Q P M F Y H L G H F S K F I P E G S
Q R V G L V A S Q K N D L D A V A L M H P D G S A V V
V V L N R S S K D V P L T I K D P A V G F L E T I S P G
Y S I H T Y L W H R Q

SEQ ID NO: 9

^{35}S Promoter nucleic acid sequence

Ttttcacaaagggtaatatcgggaaacctcctcggattccattgcccagctatctgtcacttcatcg aaaggacagtagaaaaggaaggtggctcctacaaatgccatcattgcgataaaggaaaggctatcgttca agatgcctctaccgacagtggtcccaaagatggacccccacccacgaggaacatcgtggaaaaagaaga cgttccaaccacgtcttcaaagcaagtggattgatgtgatatctccactgacgtaagggatgacgcacaat cccactatccttcgcaagacccttcctctatataaggaagttcatttcatttggagaggac

SEQ ID NO: 10

Nucleic acid sequence encoding the ER signal peptide

atgaagactaatctttttctctttctcatctttcacttctc ctatcattatcctcggccgaattc

SEQ ID NO: 11

Nucleic acid sequence encoding the vacuolar targeting sequence

gatcttttagtcgatactatg

SEQ ID NO: 12

Nucleic acid sequence of the terminator

taatttcatgatctgttttgttgtattcccttgcaatgcagggcctagggctatgaAtaaagttaatgt gtgaatgtgtgaatgtgtgattgtgacctgaagggatcacgactataatcgtttataataaacaaagactttg tcccaaaaaccccccccccngcaga

SEQ ID NO: 13

Nucleic acid sequence of the expression cassette of the invention

ttttcacaaagggtaatatcgggaaacctcctcggattccattgcccagctatctgtcacttcatcg aaaggacagtagaaaaggaaggtggctcctacaaatgccatcattgcgataaaggaaaggctatcgttca agatgcctctaccgacagtggtcccaaagatggacccccacccacgaggaacatcgtggaaaaagaaga cgttccaaccacgtcttcaaagcaagtggattgatgtgatatctccactgacgtaagggatgacgcacaat cccactatccttcgcaagacccttcctctatataaggaagttcatttcatttggagaggacaggcttcttgag atccttcaacaattaccaacaacaacaaacaacaaacaacattacaattactatttacaattacagtcga gggatccaaggagatataacaatgaagactaatcttttctctttctcatctttcacttctcctatcattatcc

tcggccgaattcgcccgcccctgcatccctaaaagcttcggctacagctcggtggtgtgtgtctgcaatgcc
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cctgcagccagaacagaagttccagaaagtgaagggatttggaggggccatgacagatgctgctgctctc
aacatccttgccctgtcacccccctgcccaaaatttgctacttaaatcgTacttctctgaagaaggaatcgga
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caatggagcggtgaatgggaaggggtcactcaagggacagcccggagacatctaccaccagacctgggc
cagatactttgtgaagttcctggatgcctatgctgagcacaagttacagttctgggcagtgacagctgaaaa
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accaacgcttgctgctgccccactgggcaaaggtggtactgacagacccagaagcagctaaatatgttcat
ggcattgctgtacattggtacctggactttctggctccagccaaagccaccctaggggagacacaccgcct
gttccccaacaccatgctctttgcctcagaggcctgtgtgggctccaagttctgggagcagagtgtgcggcta
ggctcctgggatcgagggatgcagtacagccacagcatcatcacgaacctcctgtaccatgtggtcggctg
gaccgactggaaccttgccctgaaccccgaaggaggacccaattgggtgcgtaactttgtcgacagtccca
tcattgtagacatcaccaaggacacgttttacaaacagcccatgttctaccaccttggccacttcagcaagt
tcattcctgagggctcccagagagtggggctggttgccagtcagaagaacgacctggacgcagtggcactg
atgcatcccgatggctctgctgttgtggtcgtgctaaaccgctcctctaaggatgtgcctcttaccatcaagg
atcctgctgtgggcttcctggagacaatctcacctggctactccattcacacctacctgtggcatcgccaag
atcttttagtcgatactatgtaatttcatgatctgttttgttgtattcccttgcaatgcagggcctagggctatga
Ataaagttaatgtgtgaatgtgtgaatgtgtgattgtgacctgaagggatcacgactataatcgtttataata
aacaaagactttgtcccaaaaaccccccccccngcaga

SEQ ID NO: 14

Amino acid sequence of the recombinant protein of the invention

M K T N L F L F L I F S L L L S L S S A E F A R P C
I P K S F G Y S S V V C V C N A T Y C D S F D P P T F P

A L G T F S R Y E S T R S G R R M E L S M G P I Q A N
H T G T G L L L T L Q P E Q K F Q K V K G F G G A M T
D A A A L N I L A L S P P A Q N L L L K S Y F S E E G I G
Y N I I R V P M A S C D F S I R T Y T Y A D T P D D F Q
L H N F S L P E E D T K L K I P L I H R A L Q L A Q R P
V S L L A S P W T S P T W L K T N G A V N G K G S L K G
Q P G D I Y H Q T W A R Y F V K F L D A Y A E H K L Q
F W A V TA E N E P S A G L L S G Y P F Q C L G F T P E
H Q R D F I A R D L G P T L A N S T H H N V R L L M L
D D Q R L L L P H W A K V V L T D P E A A K Y V H G I
A V H W Y L D F L A P A K A T L G E T H R L F P N T M
L F A S E A C V G S K F W E Q S V R L G S W D R G M Q
Y S H S I I T N L L Y H V V G W T D W N L A L N P E G G
P N W V R N F V D S P I I V D I T K D T F Y K Q P M F Y
H L G H F S K F I P E G S Q R V G L V A S Q K N D L D
A V A L M H P D G S A V V V V L N R S S K D V P L T I K
D P A V G F L E T I S P G Y S I H T Y L W H R Q D L L V
D T M

Other Embodiments

It is to be understood that while the invention has been described in conjunction with the detailed description thereof, the foregoing description is intended to illustrate and not limit the scope of the invention, which is defined by the scope of the appended claims. Other aspects, advantages, and modifications are within the scope of the following claims.

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